Technical Data Sheet
Pipelines & Fittings
DENSO 60 Tubular Heat Shrink Sleeve

DENSO 60 Tubular Heat Shrink Sleeve (DENSO 60THSS)

Description:	Denso 60THSS is a one piece two layer field joint coating system designed for corrosion protection of pipelines that operate at ambient temperature.

Composition:	Two-layer structure First layer: Low pre-heat modified bitumen sealant adhesive. Second layer: Thick-wall irradiated cross linked Polyolefin.

Characteristics:	Denso 60THSS is compatible with standard pipe coatings, and can also be used for coating bare, replacement pipe sections and large radius bends. Purpose formulated compound gives excellent adhesion results, excellent resistance to cathodic disbondment, and long term corrosion protection. The high performance backing is engineered for standard or high soil stress environments. The installed sleeve offers the structural integrity of a seamless tube and offers superior resistance against abrasion and chemical attack. The sealing adhesive automatically flows and repairs minor mechanical damage. This self-healing effect saves extra intervention steps. Stable in composition and plasticity over a wide temperature range. Non-hardening and non-cracking. Tough, but flexible even at low temperatures! Accommodates vibration and extreme movement of substrate. Highly resistant to mineral acids, alkalis and salts. Will adhere and remain attached to all cleaned, sound, dry metal surfaces. No special equipment or skills required

Uses:	Denso 60THSS is a one piece heat shrinkable tubular sleeve, ready to fit assembly, for the corrosion protection of field weld joints in distribution and transmission systems.
Surface Preparation and Application:	Installation is carried out directly on the cleaned and dried (pre-heated) pipe surface (as per application instructions), without any primer being required. The system is designed to be applied with minimum pre-heating and is ideal for small to medium diameter distribution and transmission systems. The tubular heat shrink sleeve is placed onto the pipe prior to final welding, and is shrunk to form a tight fit around the joint. During recovery, the adhesive softens and flows to form a perfect bond with the pipe surface providing protection against corrosion. The irradiated polyolefin outer layer forms a tough barrier against mechanical damage and moisture transmission.

Shelf Life: **Service Life:**	Indeterminably long, $\geq$ 30 years expected. Expected $\geq$ 30 years.

Denso Australia warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the technical data sheet when used in compliance with Denso's written instructions. Since many installation factors are beyond the control of Denso Australia, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection herewith. Denso Australia's liability is stated in the standard terms and conditions of sale. Denso Australia makes no other warranty either expressed or implied. All information contained in this technical data sheet is to be used as a guide and is subject to change without notice. This technical data sheet supersedes all previous data sheets on this product.

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Recommended Temperatures:	Application Temperature:	from +5° C to +60° C
	Continuous Temperature:	from -5° C to +60° C
	Peak Temperature:	up to +60° C

Availability:	The ready to use sleeve, comes without the need for the closure patch.
Dimensions:	Diameter to suit most sizes through to 300mm. Width: 450mm

Physical Properties:		**Test**	**Method**	**Value**
		Total Thickness	DIN 30672 (ASTM D374)	2260 µm
		Adhesive Thickness	DIN 30672 (ASTM D374)	1500 µm
	Backing:	Backing Thickness As supplied: Fully free recovered:	 DIN 30672 (ASTM D374)	 760 µm 1000 µm
		Specific Gravity	ASTM D-792	0.95
		Tensile Strength	ASTM D-638	22.06 MPa (3200 psi)
		Elongation at Break	ASTM D-638	560%
		Hardness, Shore D	ASTM D-2240	55
		Dielectric Strength	ASTM D-149	25 KV/mm
		Water absorption	ASTM D-570	0.05 w/w%
		Shrink force	ASTM D-638	276 KPa (40 psi)
		Volume Resistivity	ASTM D-257	$1.0x10^{16}$ Ohm-cm
	Adhesive:	Softening point	ASTM E-28	100°C (212°F)
		Lap shear	ASTM D-1002	400 psi
	Sleeve:	Peel to Steel	ASTM D-1000	100 N/cm
		Low Temperature Flexibility	ASTM D-2671	-5°C
		Cathodic disbondment	ASTM G42, 30 days, @23°C EN12068, 30 days, @60°C	10 mm radius 12 mm radius
		Impact resistance	ASTM G-14 EN12068 T&B:/C /D	35 in-lbs > 8 Nm > 15 Nm
		Residual thickness, @60°C	EN12068	2.13 mm

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Physical Properties:	**Sleeve:**	**Test**	**Method**	**Value**
		Dielectric Breakdown	ASTM D-149	15 kv
		Penetration resistance (24hrs @60°C)	ASTM G-17	Passes

Ordering Information:	One piece tubular sleeve of nominated diameter to 300mm Width 450mm
Sleeve Ordering for a one piece sleeve eg for 200mm Dia. Pipe	**Denso 60THSS 200-450,** Product type Denso 60THSS 200mm Outside pipe diameter 450 mm wide. -Uni Designates pre-attached closure patch (optional)

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